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By Murray L. Weidenbaum, Director
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A Presentation to the Chemical Forum, Sponsored by the Manufacturing
Chemists Association, Washington, D.C., October 11, 1977

**CENTER FOR THE STUDY OF AMERICAN BUSINESS
WASHINGTON UNIVERSITY ST LOUIS, MISSOURI**

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The basic theme of this presentation can be stated very simply: the excessively rapid expansion of government regulation of business is slowing down the rate of innovation and scientific progress in the United States. But the answer is not to propose the elimination of government regulation. Rather, the sensible approach is to reform the existing array of regulation so as to achieve important social objectives with less of the adverse side effects.

Government Regulation Retards Innovation

The slowdown in research and development that has been occurring in this nation is pervasive and can be measured in many ways. In real terms (constant 1972 dollars), R & D spending in the United States has been on a plateau of slightly under \$30 billion a year since 1965. Private sector R & D--which rose at an annual rate of over seven percent in the period 1953-67--has been increasing at a modest two percent a year since.

The employment of scientists and engineers in industry in 1975 (the latest period for which data are available) was lower than in 1968 --1,031,000 versus 1,046,000. This compares to a 19 percent increase in the 1964-65 period. In 1973, the Patent Office issued fewer patents to U. S. nationals than in 1963, but patents issued to foreign nationals more than doubled during the same decade. The enrollments for advance

Note: This paper draws on the author's new book, Business, Government and the Public, Englewood Cliffs, New Jersey, Prentice-Hall, 1977.

degrees in science and engineering have represented a steadily shrinking share of college enrollments since 1965. These are all measures of stagnation (or worse) in our commitment to technological innovation, at a time when expenditures in most other sectors of the economy have been growing.

The pervasive slowdown in productivity and new capital formation that the American economy has been experiencing in recent years--as well as the rise in inflation--are all interrelated aspects of the phenomenon that I have been describing. Let us first examine the impact of government regulation on the resources available for investment in new products and new processes. Subsequently, let us turn to the possibility of improving public policy so as to better meet the true, long term needs of the consuming public.

It is important to understand the direct connection between over-regulation by government in the first instance and the subsequent pleas for more detailed government intervention in business that may follow. To the extent that excessive government regulation of business reduces the ability of and incentive for business to invest in technological innovation, important national objectives--greater job opportunities, rising living standards, improved quality of life, etc.--are not achieved. Public dissatisfaction with business performance is thus increased. This, in turn, sets the scene for another round of government involvement, ranging from proposals to nationalize specific industries to subsidizing others (always of course with more strings and federal regulations). Energy is a clear example of this phenomenon and the pharmaceutical industry may be on the verge of providing another.

During the past year the public has learned about the direct effects of overregulation. I believe that it is accurate to report that we have succeeded in educating a large portion of the public about the extent to which excessive regulation increases the prices of the goods and services which they buy. Our citizens have been aroused by the knowledge that their tax dollars have been used to generate rules governing the frequency of cleaning spittoons, defining an exit, prescribing the size of toilet partitions, and telling us when a roof is a floor. Many people have also come to realize that hundreds of thousands of jobs have been eliminated as a result of federal rules.

But what is not so obvious--yet of perhaps more fundamental impact--is the extent to which regulation can absorb much of the potential growth in productivity that we expect from technological innovation and thus reduce the prospects for economic advancement.

One hidden cost of government regulation is a reduced rate of introduction of new products and improved production processes. The longer it takes for an innovation to be approved by a government agency --or the more costly the approval procedures--the less likely that the new product or process will be introduced. In any event, innovation will be delayed. As William Carey of the American Association for the Advancement of Science has stated, "Government may imagine that it is neutral toward the rate and quality of technological risk-taking, but it is not...regulatory policies aimed at the public interest rarely consider impacts on innovation." To the extent that management attention is diverted from traditional product development concerns to meeting government-imposed social requirements, a significant but subtle bureaucratization of business activity results.

Professor Sam Peltzman of the University of Chicago has estimated that the 1962 amendments to the Food and Drug Act are delaying the introduction of effective drugs by about four years, as well as leading to higher prices for drugs. As a result in large part of the stringent drug approval regulations, the United States was the thirtieth country to approve the anti-asthma drug metaproterenol, the thirty-second country to approve the anti-cancer drug adriamycin, the fifty-first country to approve the anti-tuberculosis drug rifampin, the sixty-fourth to approve the anti-allergenic drug cromolyn, and the one hundred sixth to approve the anti-bacterial drug co-trimoxazole.

On occasion the regulators seem to have the private sector scared. In August 1975, the National Cancer Institute reported that the solvent trichlorethylene, known as TCE, might be a possible cause of cancer. TCE at the time was used in decaffeinated coffee. It seems that the government used a generous dose of the chemical on the test animals--the equivalent of a person's drinking 50 million cups of decaffeinated coffee every day for an entire lifetime. But did the industry laugh at this example of governmental nonsense? Hardly. With the cyclamate episode still firmly in mind and a saccharin ban being seriously considered, one major producer quickly changed to another chemical.

The governmental decision making process can have other adverse effects on innovation by creating uncertainty about the future of regulations governing the introduction of new processes and products. An example is the report of the task force of the President's Energy Resources Council dealing with the possibility of developing a new synthetic fuel industry. In evaluating the impact of the Federal Water Pollution Control Act Amendments of 1972, the task force reported,

"It would be next to impossible at this time to predict the impact of these requirements on synthetic fuels production." Moreover, in considering the National Environmental Policy Act, the task force stated that the major uncertainty was not whether a project would be allowed to proceed, but rather the length of time that it would be delayed pending the issuance of an environmental impact statement that would stand up in court. The task force pointed out, "The cost of such delays (construction financing and inflated raw materials and labor costs) is an obvious potential hazard to any synfuels project."

In evaluating the overall impact of government regulatory activity, the task force concluded, "In summary, some of these requirements could easily hold up or permanently postpone any attempt to build and operate a synthetic fuels plant."

Similar sentiments have been expressed by executives of private R & D laboratories. B. L. Williams, director of corporate research at Monsanto, has stated that it is not the regulations themselves or the threat of regulatory action, "onerous as they may be, but the unpredictability of such action" that is at the heart of the problem.

Clearly, large and rising shares of corporate R & D budgets are being diverted from traditional efforts for product and process improvement to meeting regulatory requirements. This trend is apparent in the automotive industry. According to the head of General Motors research laboratory, "We've diverted a large share of our resources--sometimes up to half--into meeting government regulations instead of developing better materials, better manufacturing techniques, and better products."

If long established products such as saccharin and creative new products are to be arbitrarily eliminated by governmental regulations,

the very threat of future, unforeseeable government action will force companies in other industries, such as chemicals, to become more conservative in allocating funds to R & D, to devote their R & D budget to reactive and defensive research. Moreover, corporate investment funds which must be dedicated to meeting government-mandated social requirements are by definition not available for new R & D undertakings.

The basic nature of the underlying public policy problem has been forcefully described by W. O. Baker, head of the Bell Laboratories, as a "bizarre conflict" between the presumptive laws and regulations of pervasive government in a low-risk, welfare society and "the present realities of technical and scientific advance, which, more than ever, demand the freedom to experiment deeply and to innovate boldly."

A related and generally overlooked aspect of the impact of government regulations is that they tend to hit the smaller companies disproportionately hard. This is true in every case that I have had the opportunity to examine--recordkeeping, job safety, labor relations, environmental controls, etc. I understand that the Toxic Substances Control Act of 1976 (TOSCA) may also turn out to have such an undesirable effect. The members of this association well know the costs being imposed on them by the new law and ultimately, of course, the consumer will bear the burden of paying the higher prices that inevitably will result.

But what may not be apparent to most people is the basically anticompetitive nature of these regulations. I do not mean to underestimate the problems that are being faced by the larger companies.

But I believe that it is realistic to expect that most of them will be able to adjust to the expanded regulatory environment. It is the smaller companies that may be more adversely affected. Many of them may have more difficulty surviving as independent entities. The foundry industry surely provides a cogent case in point; generally, it has been the smaller plants that have been forced to close down in the face of rising government-mandated costs.

Increasingly, business is operating in an environment in which the application of the fruits of science and engineering to products and services is coming under detailed government scrutiny far in advance of their widespread use. Federal controls are having their impact at every major stage of the product cycle.

Even though the expansion of government regulation of business is designed to benefit the consuming public, it is the consumer who ultimately pays the added costs that invariably result. Yet, the key price that this nation may be paying is the attenuation of the risk-bearing and entrepreneurial characteristics of our private enterprise system which, in the past, have contributed so effectively to rapid rates of productivity, growth and progress.

The Need for Innovation in Government Regulation of Business

What can be done to improve the public policy environment in which business operates? To summarize very tersely and perhaps too simply, there are two fundamentally different approaches that are simultaneously being urged on government policymakers. One is to extend further the scope of government regulation--to set up a consumer advocacy agency, to oversee the activities of multinational corporations, to use the government's chartering power to alter the basic function and organization

of the modern corporation, to extend antitrust activities to affect a splitting up of the larger American corporations, and to establish a centralized planning system embracing the economic activities of both the public and the private sectors. This first approach in its essence would involve government far more deeply in the day-to-day functioning of the business system. That type of action would be in the nature of the traditional hangover remedy, known as "having a bit of the hair of the dog that bit you."

The second approach is in many ways a more modest one and not a monolithic viewpoint, and it is the one that I advocate. This view considers the existing totality of government regulation as an extremely vast and ambitious undertaking. Therefore, this second approach is concerned with the serious shortcomings of existing regulatory efforts and stresses opportunities for reform.

Several different avenues for regulatory reform can be identified. The first relates to the older regulatory commissions each of which has jurisdiction over one or a few related industries. Here is where the issue of deregulation has been raised and, on occasion, may be an appropriate response. Frankly, one of the factors that has muddied the waters is that many of the proponents of the newer regulatory programs have been scared--perhaps needlessly--by fears that the general talk about deregulation extends to environmental, safety, personnel, and the newer areas of government involvement, and it does not.

Sensibly, the discussion of deregulation relates to the ICC and CAB types of activity, where greater dependence on competitive market forces may be a practical alternative. To many economists as well as to "public interest groups," this traditional type of regulation constitutes a form of protection for the existing firms in an industry,

serving as a barrier to the entry of new firms and thus shielding entrenched firms from potential new competition.

I urge the avoidance of excessively simple approaches to this difficult subject. For example, I do think it appropriate to rely more heavily on market forces where a reasonable competitive market structure exists or is likely to develop. Yet, we should not forget the basic natural monopoly (decreasing cost) argument that has led to the chartering of public utilities and the establishment of public utility regulatory commissions. In these cases, attention might better be given to modernizing the often excessively protracted regulatory process (e.g., reducing regulatory lag) and to providing greater incentives to regulated companies to achieve higher levels of productivity and efficiency. Stating the desire of course is far easier than identifying specific courses of action.

The newer forms of regulation constitute a more varied lot-- dealing in general with the external public impacts of ostensibly private actions. In the case of environmental protection, there is widespread although not universal agreement that the social costs of pollution warrant government intervention. However, there is considerable disagreement as to the most effective methods to use. Many economists prefer working through the price system rather than relying almost exclusively on promulgating standards and issuing specific regulations. Taxes (usually forms of excise or sumptuary levies) are the preferred way of working through the price mechanism to increase the relative prices of pollution-intensive means of production and consumption, and thus hopefully promoting more ecologically sound production and consumption patterns.

In the case of other cross-industry types of regulatory activity --such as job health, product safety, and employment discrimination-- benefit/cost analysis may be a useful way of reconciling a variety of conflicting attitudes and viewpoints. Contrary to the assertions of some, benefit/cost analysis is not a "green eye shade" approach which is only concerned with costs to business and is oblivious to the broader needs of and impacts on the public. Rather, a properly applied benefit/cost test is a way of arraying all of the important impacts--good and bad, direct and indirect--that flow from a government regulatory program.

To be sure, there are great difficulties in conducting appropriate benefit/cost analysis and many studies in practice fall very short of what is desirable. But it is an analytical way of looking at government regulation which is open-minded, if not eclectic. There is no advance assurance that a benefit/cost analysis will support a proposed regulation or that it will condemn it. But properly conceived and properly executed, this approach will go a long way to ensuring that the government's decision making process will try to take account of far more factors than traditionally has been the case.

This type of analysis could be instituted through legislation via the "sunset" bills which are now being considered in the Congress. These proposals would require compulsory periodic reviews of each major regulatory program. For example, the Regulatory Reform Act of 1977 (S.600--the Percy-Byrd-Ribicoff Bill) sets an eight-year cycle over which the President is to submit reform proposals for each major regulatory agency and for Congress reviewing those proposals. These proposals are to include recommendations for increasing competition, and for procedural, functional, administrative, and structural reforms.

The Congressional review is to be assisted by detailed studies by the General Accounting Office and the Congressional Budget Office. The "sunset" mechanism (automatic termination of the regulatory agency) is provided over a period of time should Congress fail to enact reform legislation.

The Regulatory Reform Act of 1977 appears at the present time to be an effective vehicle for improvement: it is comprehensive; the required changes are phased over a sensible period of time; the executive and legislative branches are both involved in the reform process; and a forcing mechanism (the "sunset" approach) is used to trigger actions in this difficult and controversial area. But the enactment of S.600 is not necessarily going to result in eliminating government regulation or in expanding it. Rather, it provides the opportunity and mechanism for modernizing and improving an aspect of government activities which has profound repercussions on the entire society.

The enactment of this or other legislation would still require a fundamental turnaround in prevailing executive branch attitudes. A greater display of humility on the part of regulators would be most welcome. In my own experience, I have yet to come across the business executive who enjoys polluting the environment or producing unsafe products. What I have found is honest disagreement as to the most effective and sensible ways in which to proceed in attaining the nation's social objectives.

Some Concluding Thoughts

Any realistic appraisal must acknowledge that important and positive benefits have resulted from many of the government's regulatory

activities--in terms of less pollution, fewer product hazards, reducing job discrimination, and achieving other socially desirable objectives of our society. It should also be realized that these federal programs were established by the Congress in response to a surge of rising public expectations about corporate performance.

But the "externalities" generated by federal regulation need not justify government attempting to closely regulate every facet of private behavior. Indeed, the experience with existing governmental efforts indicates that further expansion of government involvement in the detail of business decision making is likely to be self-defeating. Rather, some restraint might yield great rewards.

To be sure, the exercise of judgment in regulatory matters can involve striking a balance in some extremely difficult areas, literally of human life. As a former commissioner of food and drugs has stated, "In FDA decisions, as in all aspects of human endeavor, we must accept the probability of nonexistence of absolute safety." Dr. Alexander Schmidt went on to raise some very difficult questions: Just where and when does one draw the line in weighing demonstrable benefit against theoretical risk? Who is to draw the line? Government or industry or the individual consumer? Dr. Schmidt criticized the anticancer clauses in existing food safety laws because, literally interpreted, they leave no room for scientific judgment, calling for zero risk from all new food ingredients.

A new attitude of restraint in imposing additional regulations on the private sector--which would lower the risk and the cost of research and development by business--might well have a salutary effect on the

pace of technological innovation and scientific progress in the United States. The benefits would be widespread. They would include lower prices for American consumers, greater job opportunities for workers, and ultimately an improved quality of life for the average citizen.